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Trends in Gram-negative bloodstream infection, antimicrobial use and antimicrobial resistance in Northern Ireland

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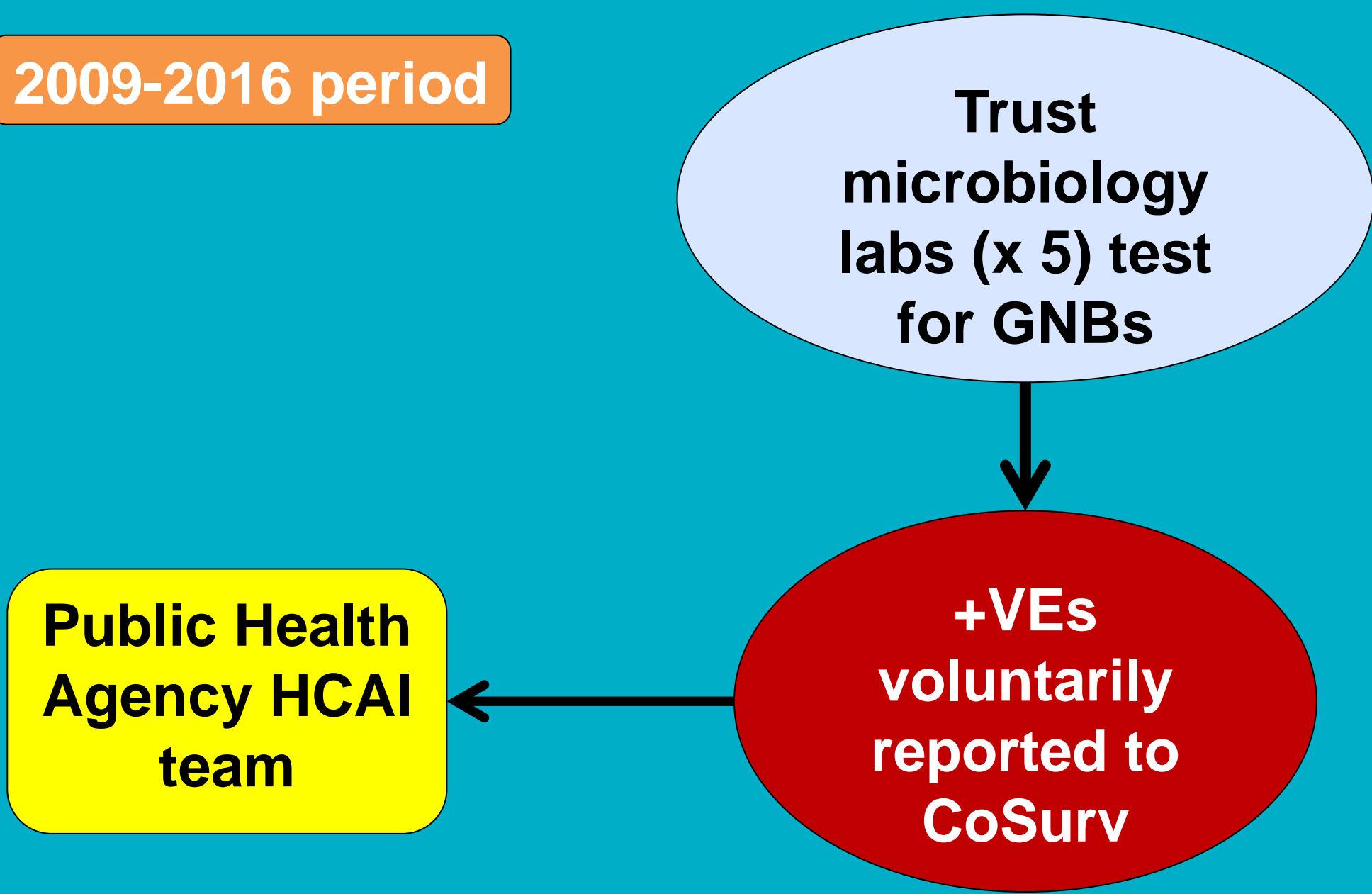


Introduction:

Antimicrobial resistance (AMR) is a present and growing threat to global human health. Gram-negative organisms present a particular challenge due to their ability to develop resistance, while the inappropriate and overuse of antibiotics further accelerates the AMR process. The Northern Ireland (NI) Department of Health, Social Services and Public Safety aimed to ‘establish and maintain systems to monitor antimicrobial usage and surveillance of resistance’ (DHSSPSNI, 2012). The selected results outlined in this poster are the product of that system. Full results are available at: <http://pha.site/AMR2017>

Methods:

2009-2016 period

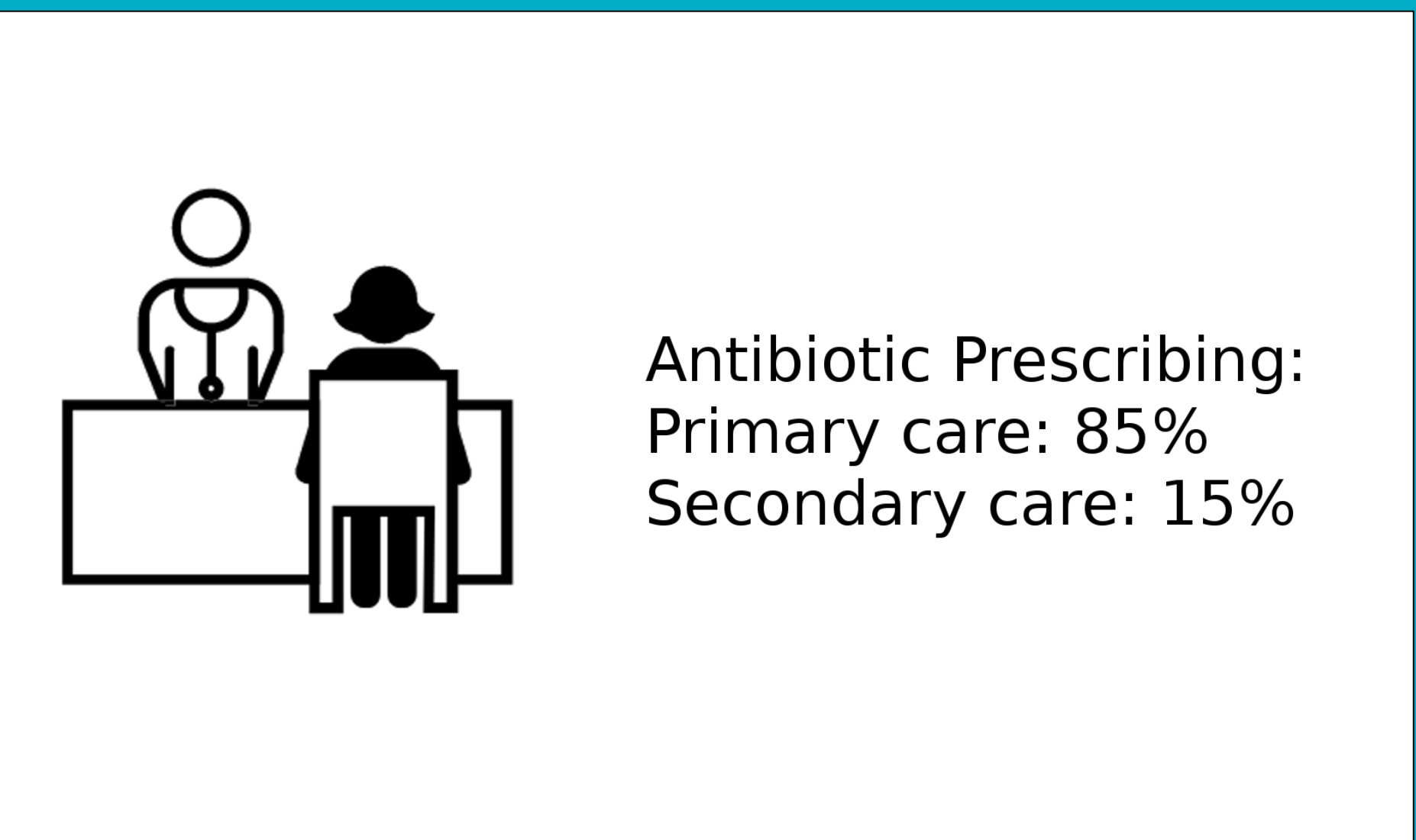
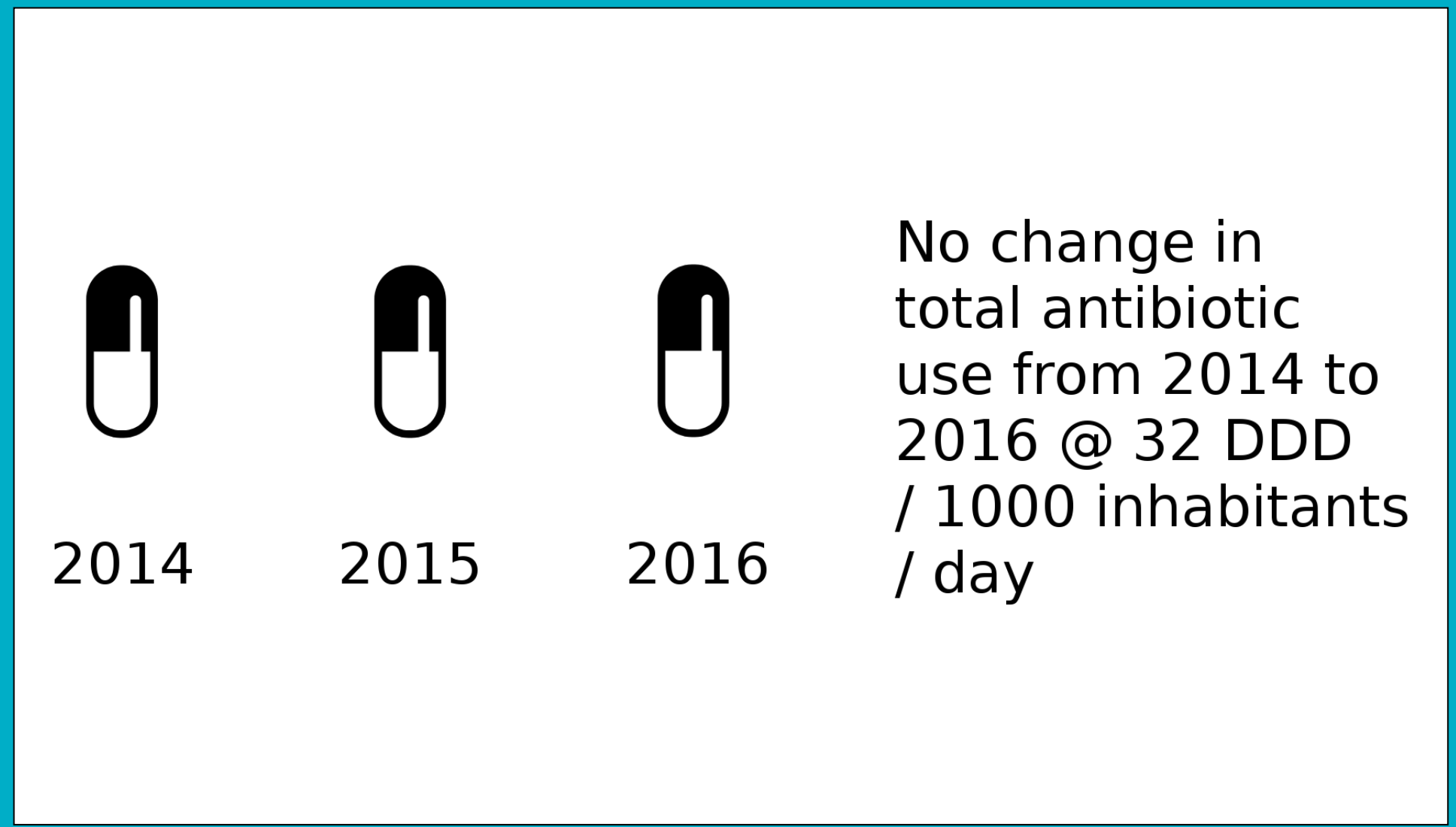
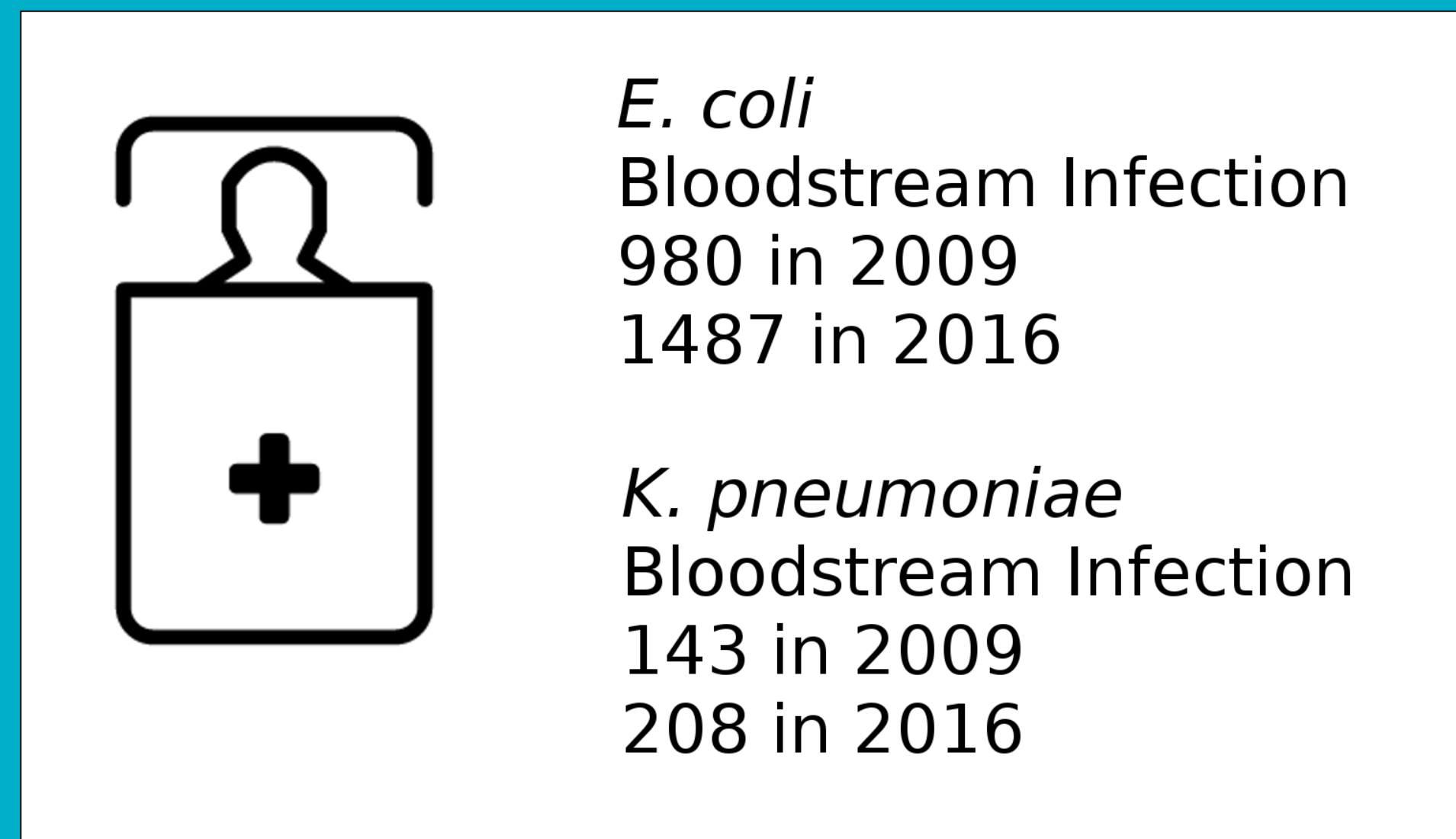


Antibiotic susceptibility testing. Reported to PHA as:

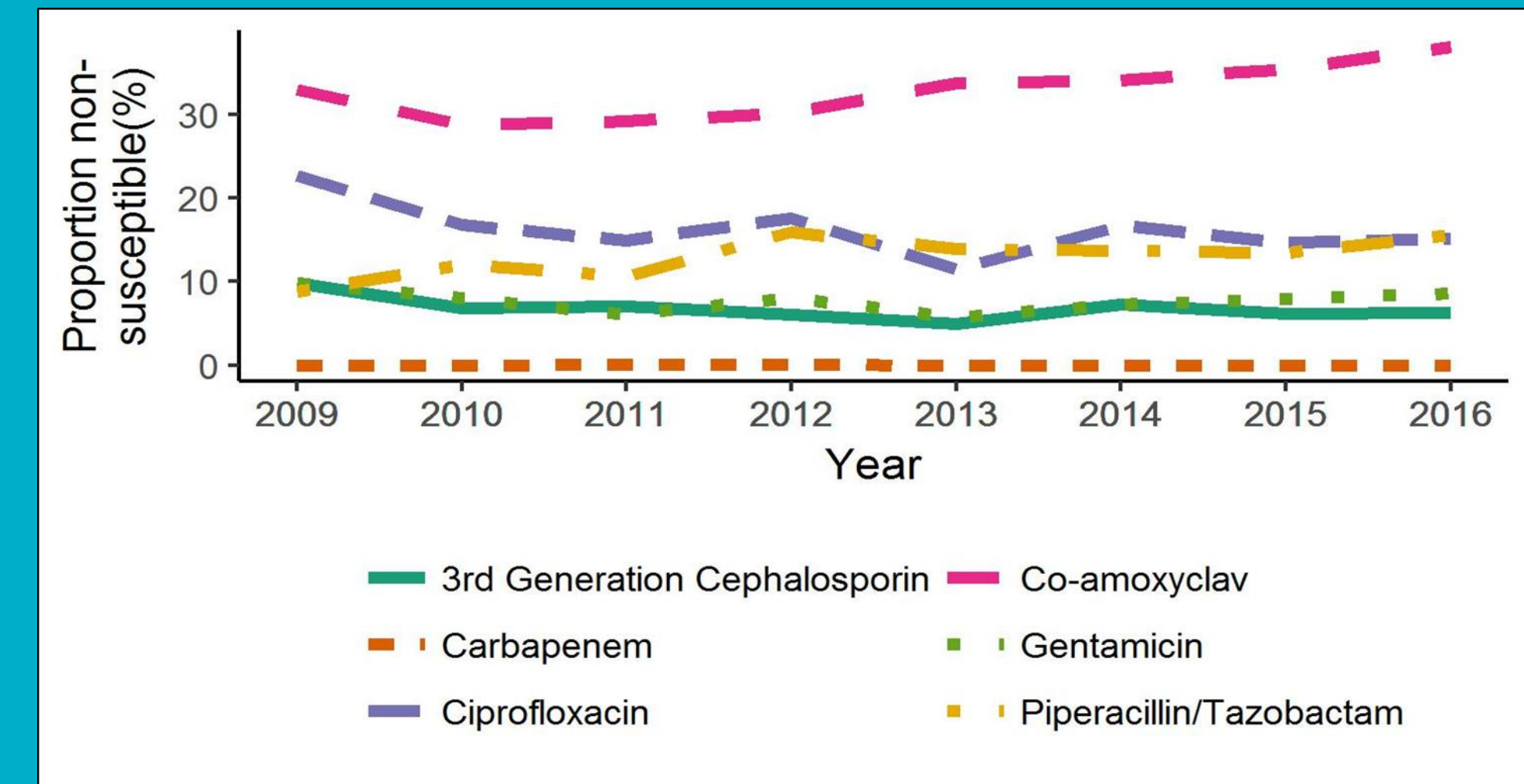
- **Susceptible (S):** growth inhibited in vitro by a concentration of the drug associated with a high likelihood of therapeutic success.
- **Indeterminate (I):** concentration required to inhibit growth in vitro associated with uncertain therapeutic outcome at standard doses.
- **Resistant (R):** concentration required to inhibit growth in vitro associated with a high likelihood of therapeutic failure.

*I and R grouped together as ‘Non-Susceptible’ for reporting purposes.

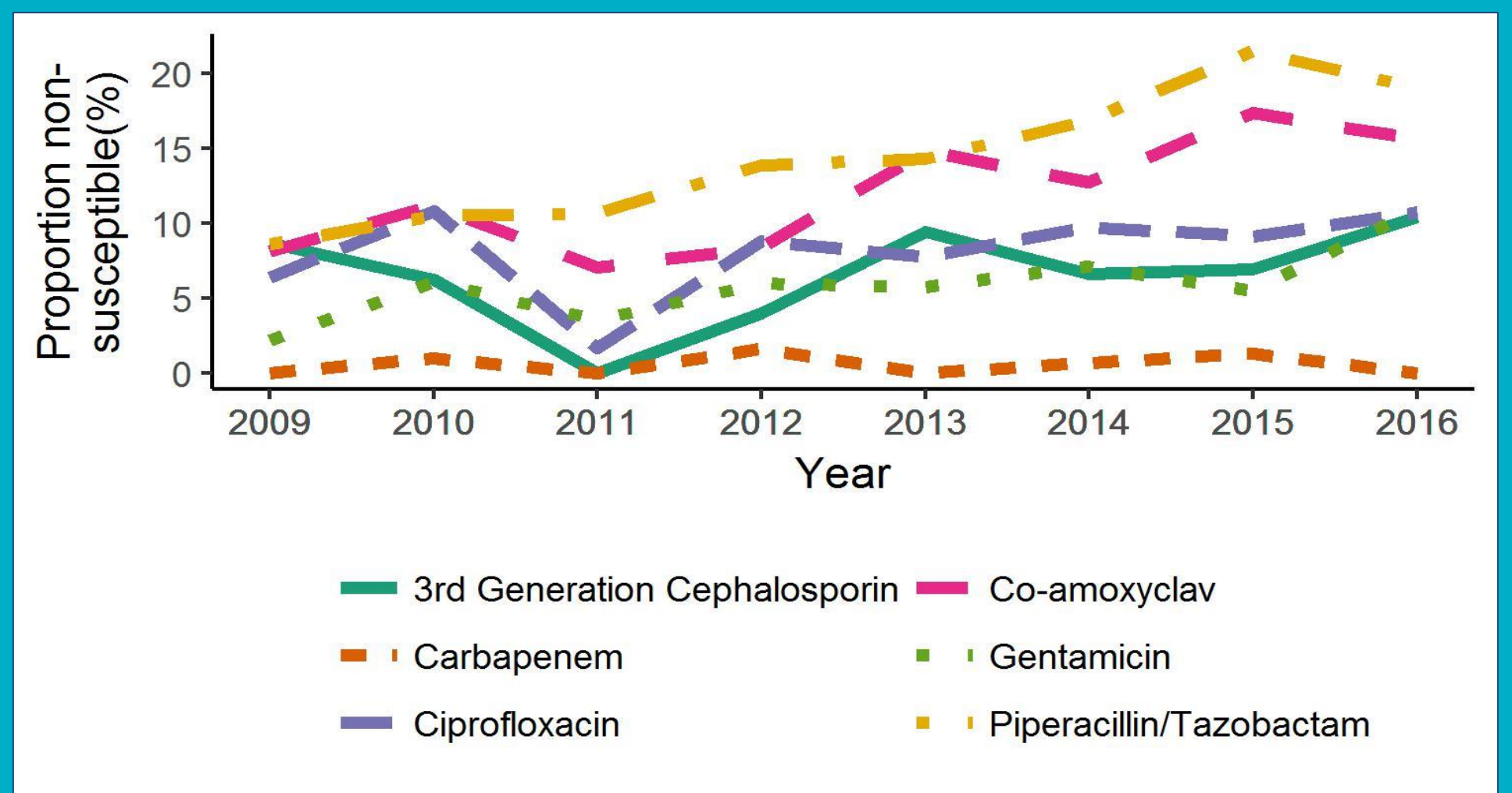
Results:



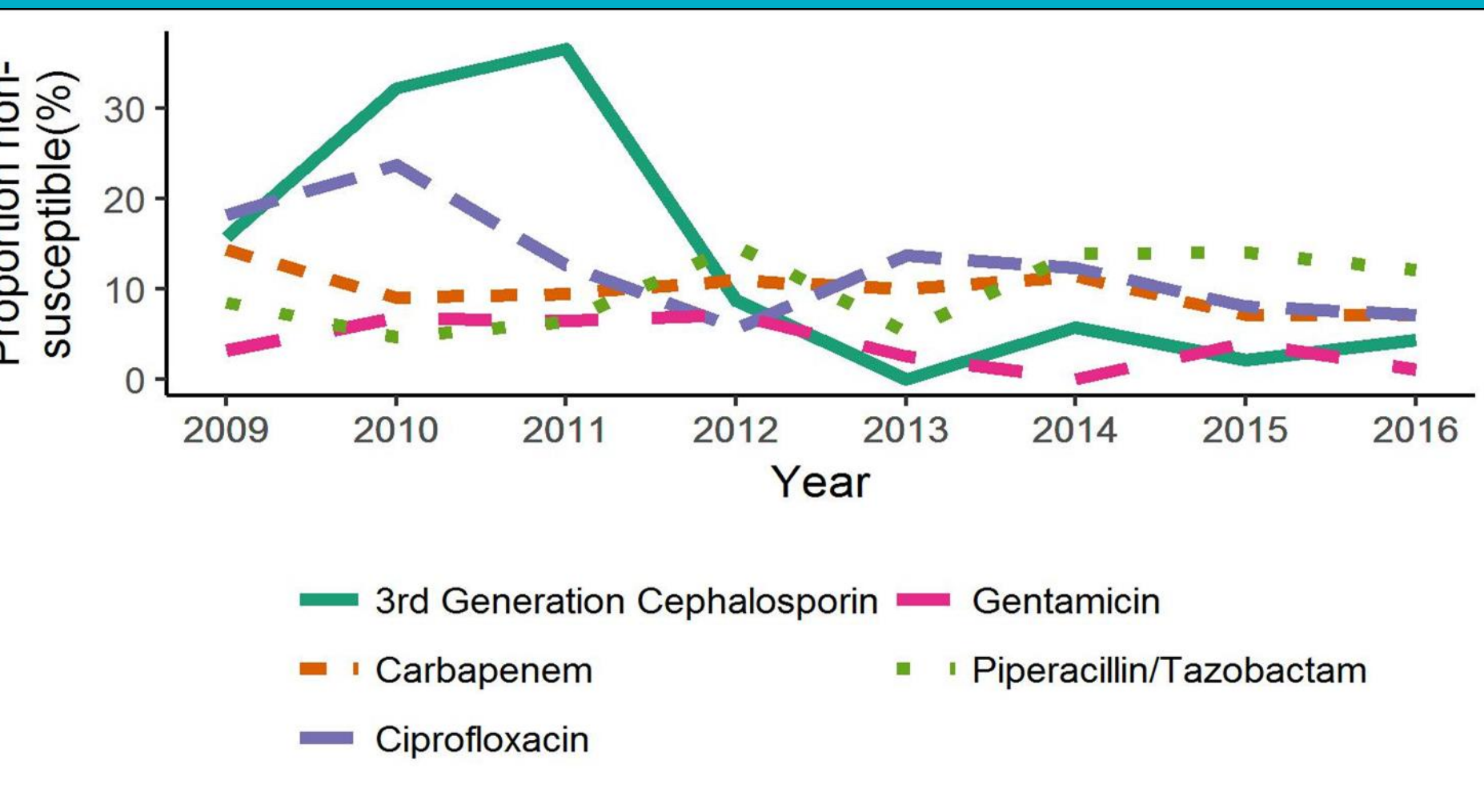
Resistance: *E. coli*



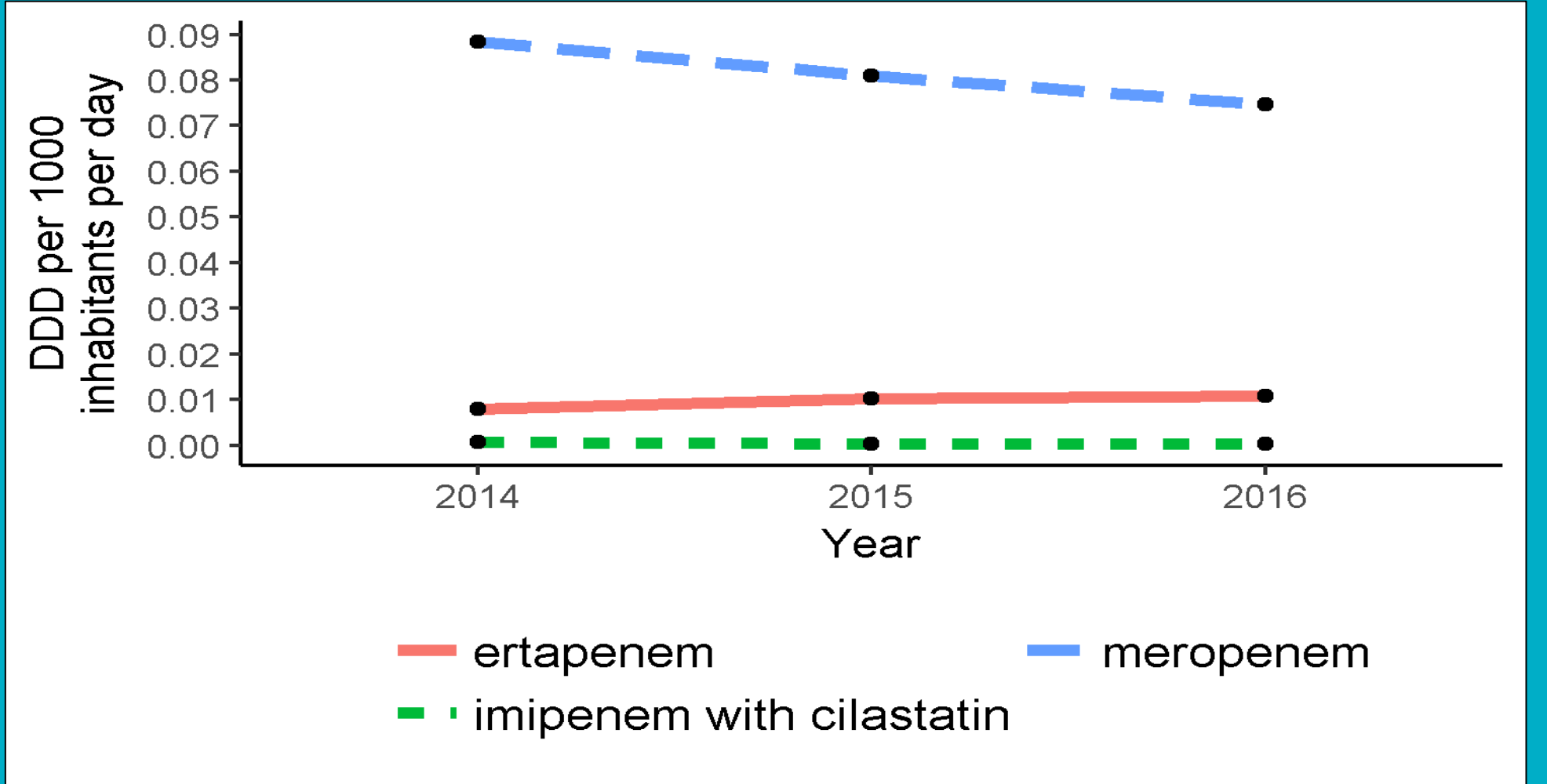
Resistance: *K. pneumoniae*



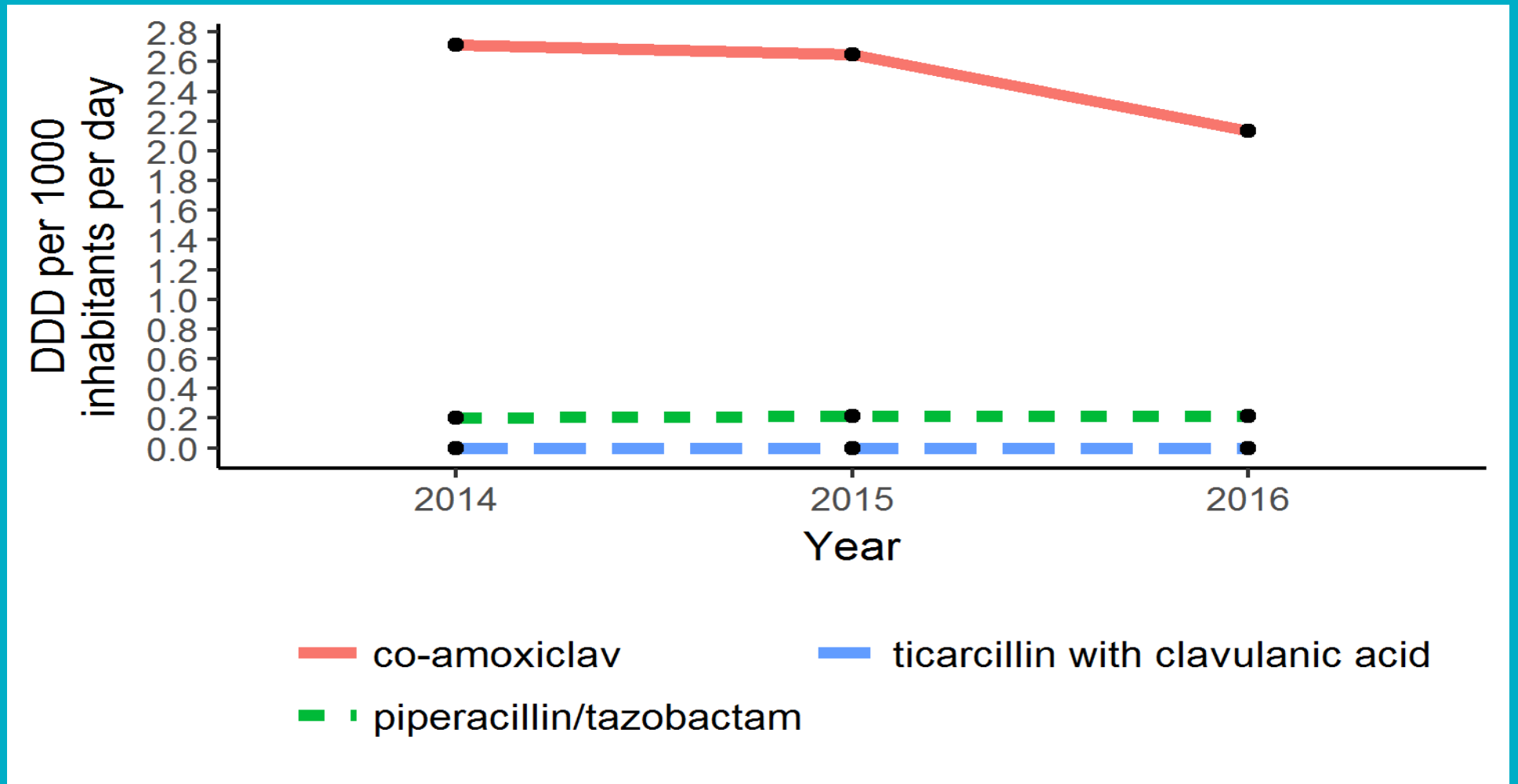
Resistance: *Pseudomonas Spp.*



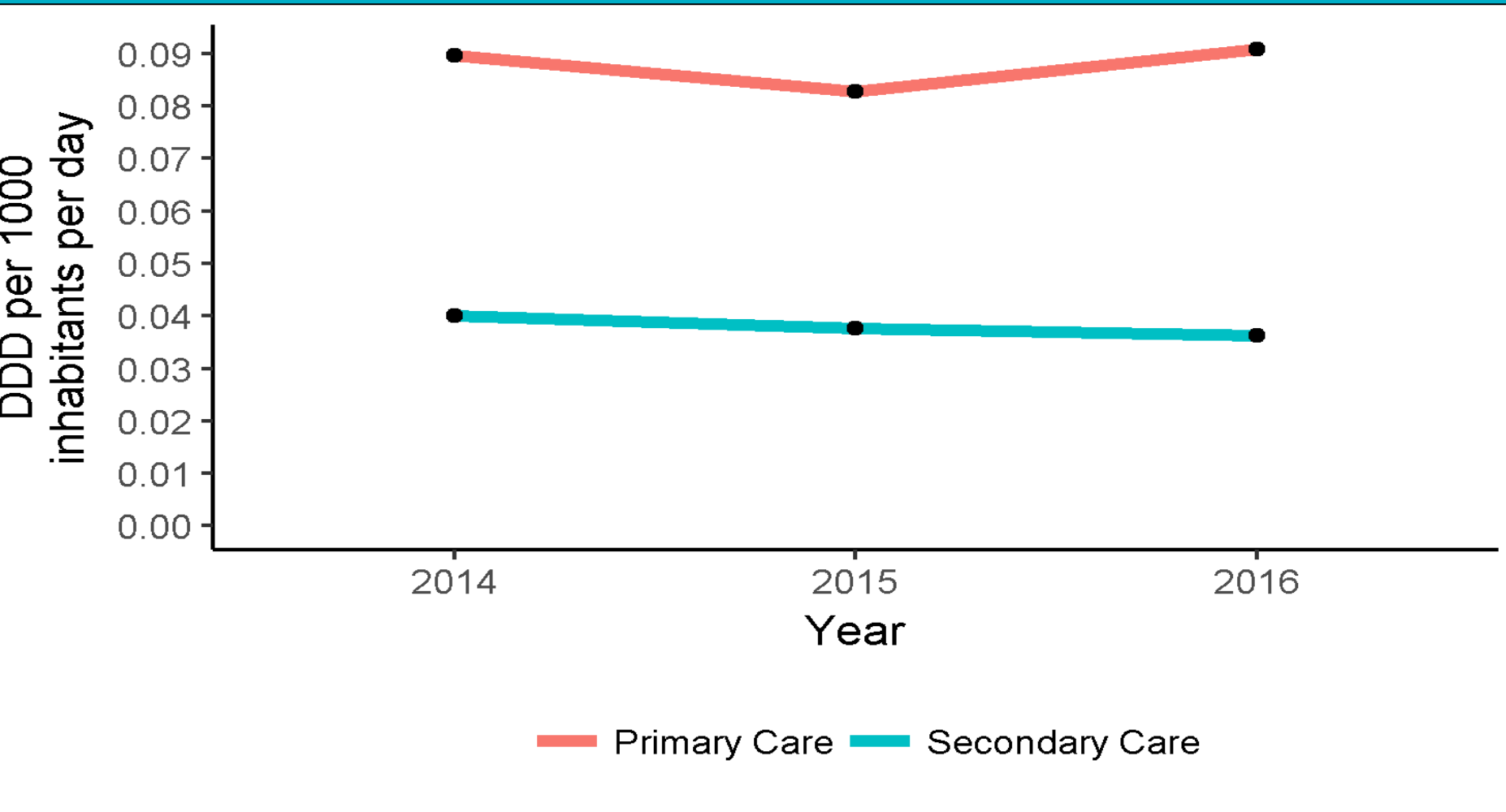
Consumption: Carbapenems



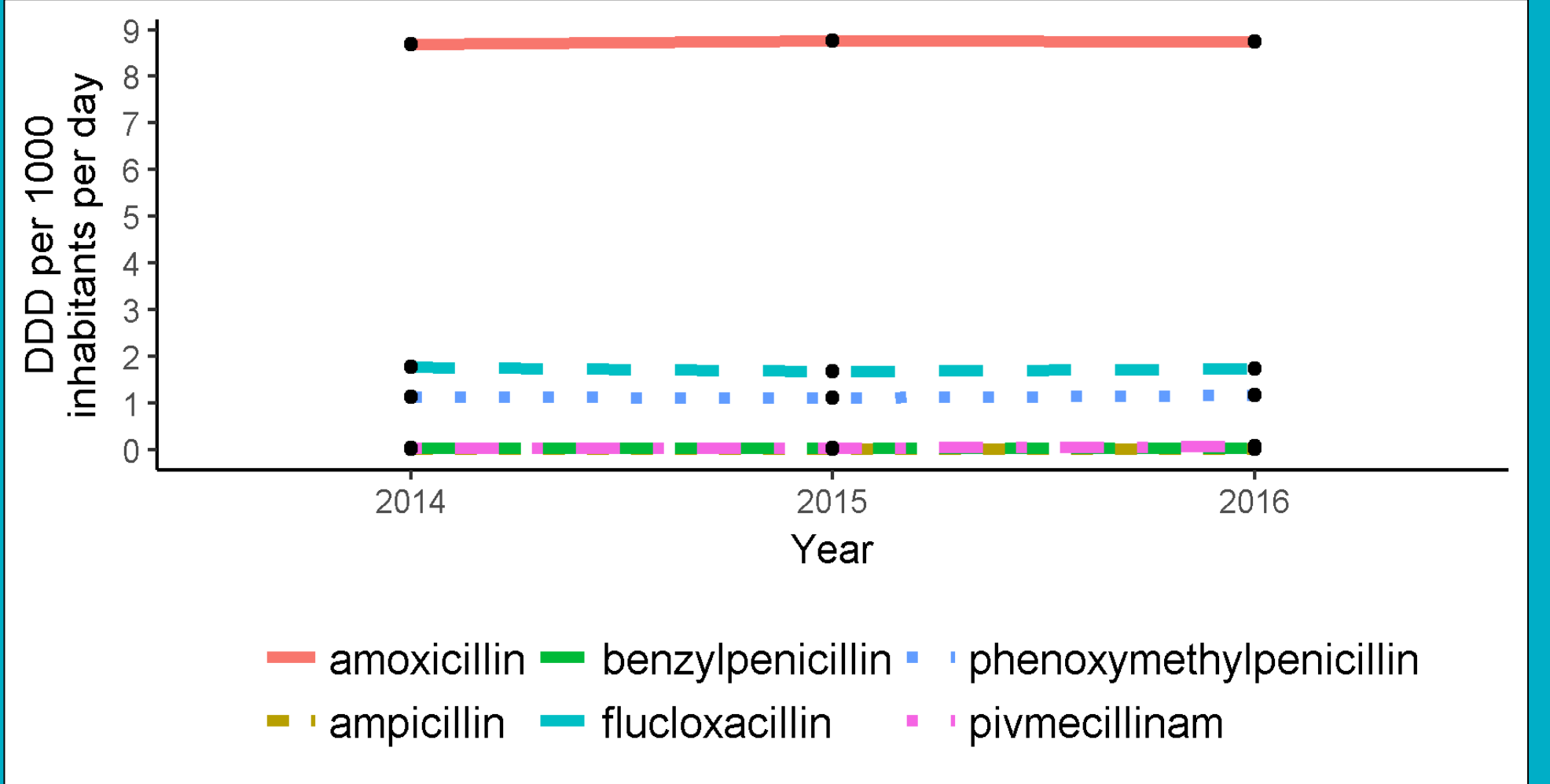
Consumption: Piperacillin/tazobactam



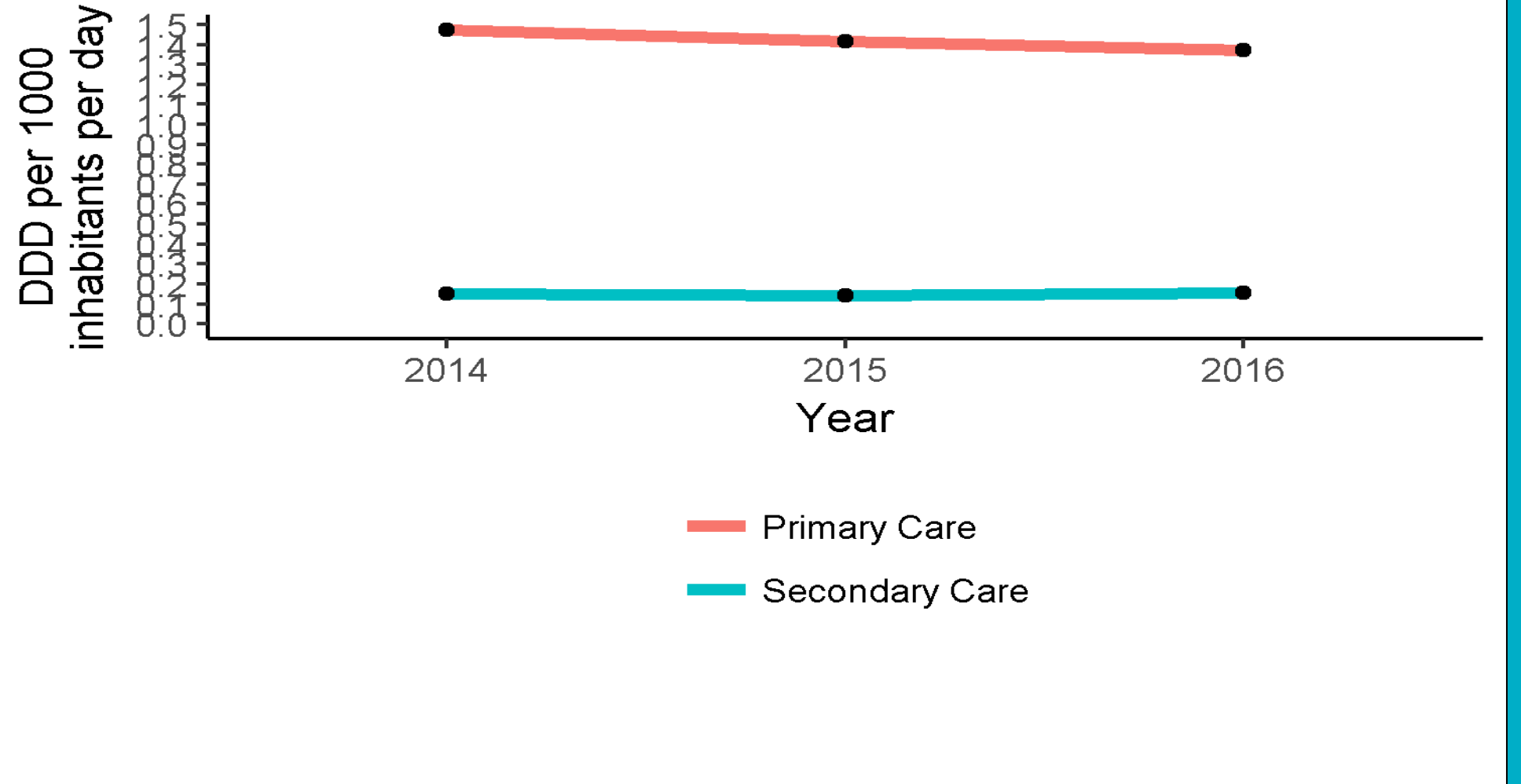
Consumption: Colistin



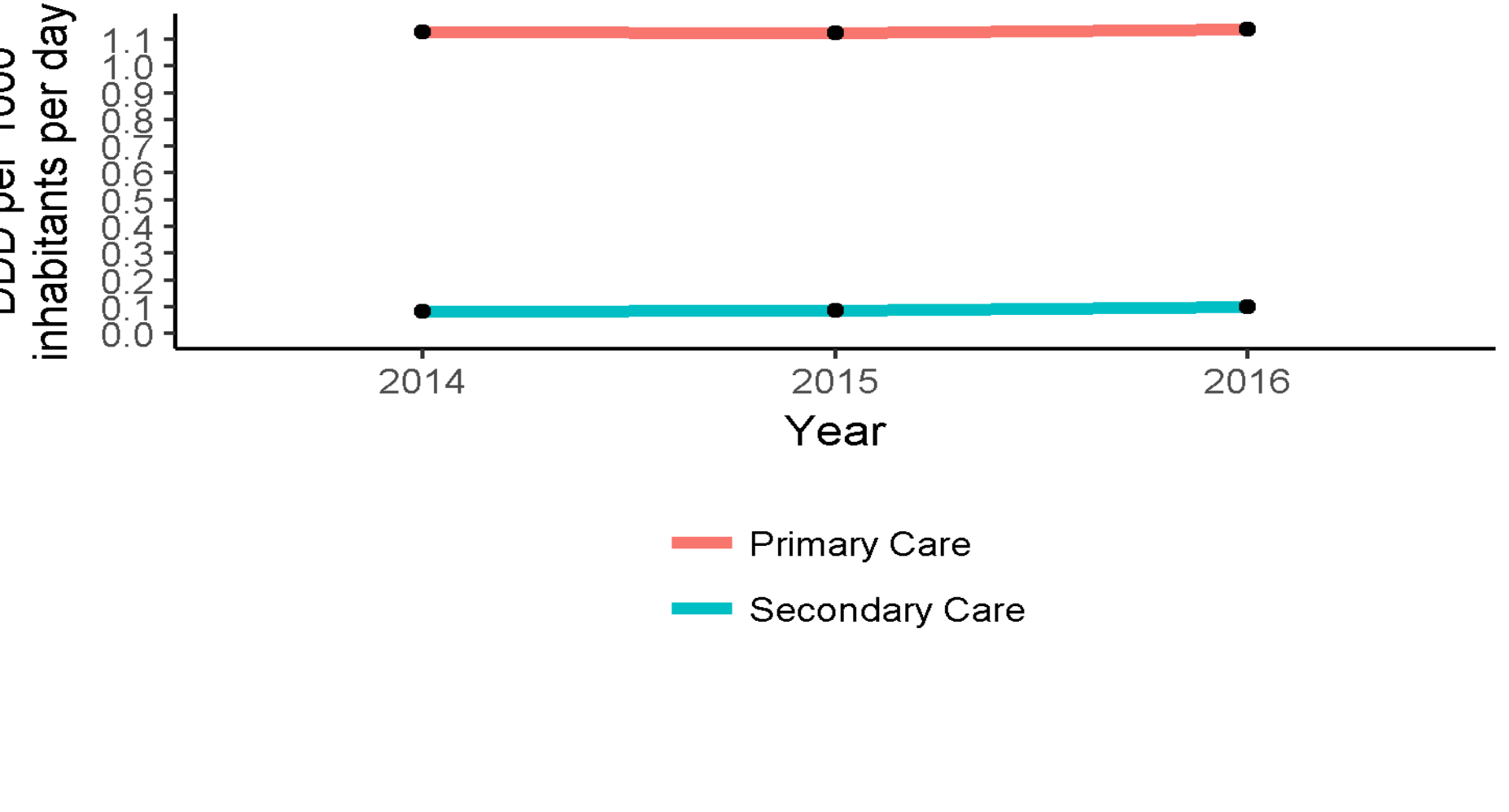
Consumption: Penicillins



Consumption: Trimethoprim



Consumption: Nitrofurantoin



Conclusions:

- There has been an increasing incidence of gram-negative bloodstream infections and a small rise in the proportion resistant to selected antibiotics.
- Rates of antibiotic consumption are stable but substantially higher than other parts of the UK.
- We have limited information about who is receiving antibiotics and who is prescribing them.

Recommendations:

- Further investigation is needed to identify who is receiving and prescribing antibiotics in Northern Ireland.
- Availability of timely, detailed intelligence for practitioners/managers should help target efforts to reduce consumption and inappropriate antibiotic use.